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## Justification of terms of useful life of organizational knowledge

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### Abstract

**In article the question of need of establishment of terms of useful life of organizational knowledge for the enterprises of various branches of the industry is brought up. The key directions of innovative policy of Russia are shown. Bases of the accounting, tax legislation and possibility of establishment of terms of useful life of organizational knowledge are studied. The structure and classification of the factors defining size of term of useful life of organizational knowledge are established. Diagnostics of the specified factors for the purpose of justification of terms of useful life of organizational knowledge is carried out.**

**Keywords: innovations, term of useful life, amortization, knowledge, factors, diagnostics.**

### I. INTRODUCTION

Now an important role in receiving and preservation of competitive advantages of the enterprises plays not so much physical, how many the human capital. According to the United Nations 64 % of the wealth saved up in the world are the share of the human capital, a share of material wealth – only 36 %. For Russia the called indicators respectively make 40 % and 60 % [2]. During too time knowledge are proclaimed today the most valuable resource in activity of any managing subject. V. V. Putin in the report on January 30, 2012 «The new economy» is necessary to us noted the following strategic moments for Russia: «It is necessary to overcome inertia of the large domestic capital which, frankly speaking, weaned from innovative projects, from researches and developmental works. Now 47 companies with the state participation accepted innovative programs. But also private corporations should be accustomed to that 3-5 % of their gross revenue should go to researches and development. It is necessary to develop the corresponding tax tools, but main — this understanding heads of private business that without it they simply won't be perceived in the global market as equal participants» [1]. In the provided quote it is a question of the corresponding privileges to the enterprises which are carrying out innovative activity. As to innovative development of the Russian economy, studying of methods of accumulation of scientific knowledge here is necessary. However speed of emergence of technological, marketing and organizational novelties is very high that essentially reduces term of useful use of knowledge. In a case with the physical capital charge of amortization which remains at the disposal of the enterprise is applied and used for a complete recovery of fixed assets. For the human capital, namely its such component as knowledge of similar charges it is not provided. Thus, for the purpose of development of the tools promoting development of innovative activity of the enterprises, we offer introduction in economy of knowledge of such indicator as

*term of useful life of organizational knowledge.* In our opinion, organizational knowledge represents regularities of the objective world and artificially created systems, having the information character, growing-out synergies of individual and group knowledge which arises in the course of communications. They are considered as an enterprise element, i.e. a resource, result of activity, a production factor, object of management. Justification of term of useful life of organizational knowledge will be applied to definition of norms of amortization of organizational knowledge, development of methods of charge of amortization and further – definitions of depreciation charges of organizational knowledge. And, we offer amortization implementation only the obvious formalized knowledge which are public, ready to distribution, to practical application and are base for creation of new knowledge. This circumstance will serve as motivation of implementation of translation process of knowledge from implicit in obvious, and also their formalizations at level of the concrete enterprise.

### II. MATERIALS AND METHODS

Term of useful life – the expected period of use of amortization property (fixed assets and intangible assets). The concept is applied to the purposes of accounting and profit tax definition. Term of useful life of object influences the amortization sum. The term of useful life is less, the quicker the project cost is written off on expenses. In our opinion, *term of useful life of organizational knowledge – the expected period of use of knowledge with a view of the organization, i.e. term during which they will bring in to the enterprise the income.*

The size of terms of useful life of fixed assets decides in compliance on «Classification of the fixed assets included in amortization groups», the Russian Federation approved by the Resolution of the government from 1.01.2002 of No. 1 in edition from 10.12.2010 [5]. Terms of useful life of intangible assets are defined by the organization independently starting with: 1) period of validity of the patent, the certificate and other restrictions of terms of use of objects of intellectual property according to the legislation of the Russian Federation; 2) expected term of use of this object during which the organization can receive economic benefits; 3) quantities of production or other natural indicator of the amount of works expected to receiving as a result of use of this object. According to item 27 Provision on accounting 14/2007 term of useful life of a non-material asset is annually checked by the organization on need of its specification [3]. In case of essential change of duration of the period to which current the organization assumes to use an asset, term of its useful life is subject to specification. The adjustments which have arisen in this regard are reflected in accounting and the accounting reporting for the beginning of fiscal year as changes in estimated values. In a case when it is not possibly to define term of useful life, it admits equal: for accounting - to 20 years, for tax accounting - to 10 years (but no more term of activity of the organiza-

tion) [4]. For tax accounting from this rule there is an exception: on some non-material asset the taxpayer has the right to establish independently term of useful life which less than two years can't be. Such intangible assets treat: exclusive right to the invention (the industrial sample, useful model), on use of the computer programs, databases, topology of integrated chips, selection achievements, know-how possession.

In our opinion, it is expedient to determine term of useful life of organizational knowledge by some analogy to intangible assets since knowledge also is the non-material object, capable to bring in the income. At definition of term of useful life of organizational knowledge factors of the external and internal environment of the organization since they can serve as indicators of privileges for the enterprises at write-off of the expenses connected with acquisition of knowledge have special value.

In earlier researches we designated structure and classification of the factors defining a choice of an optimum stage of development of the self-learning organization, and also diagnostics [6] is carried out them. As a basis of the self-learning organization is knowledge, consider possible use of these factors with some adjustment and for establishment of size of terms of useful life of organizational knowledge. On fig. 1 the structure and classification of the factors defining size of term of useful life of organizational knowledge is presented. Factors are classified on internal (in a complex characterize the organization from a position of economy of knowledge) and external (don't depend on the company). The great value has such factor, as character of let-out production since the maximum need for knowledge is tested by the organizations with the greatest specific weight in structure of prime cost of expenses for design of products and technology of their manufacturing. Essential influence renders production type. For example, the organization with individual type demand from the personnel not only encyclopedic knowledge, but also their continuous updating. Need for knowledge also depends on strategy which the company adheres. Especially acute shortage of knowledge can be felt by the organizations which have taken a way of a diversification. The constant increment of knowledge is demanded by the enterprises created on the basis of collective, having the high cognitive potential, capable to create new knowledge. Environment is that factor which defines degree of adaptability of the organization, including at the expense of available knowledge. In comparison with our work concerning the self-learning organization [6], such factor as a share of the personnel of the organization, taken with scientific researches and development is added. The factor is one of the main indicators of innovative capacity of the enterprise and represents that part of workers which is directly involved in scientific activity [7]. Not less important for the enterprises is innovative activity which is understood as a kind of activity connected with transformation of ideas (results of scientific researches and development, other scientific and technical achievements) in new or advanced products or the services introduced in the market, in new or advanced technological processes or ways of production (transfer) of the services, used in practical activities [7]. Continuous technological, marketing and organizational innovations are the integral line of the organization in economy of knowledge [7] therefore are allocated as independent internal factors.

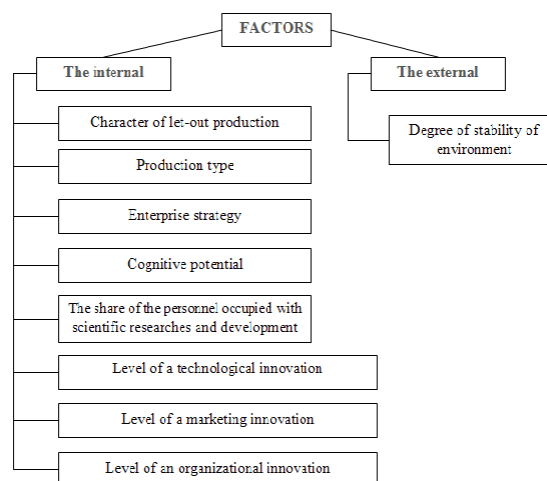


Figure. 1. Structure and classification of the factors, defining size term of useful life of organizational knowledge

### III. RESULTS AND DISCUSSIONS

Diagnostics of nine factors, presented on fig. 1, is given in tab. 1. In it factors, their classification and ways of an assessment, among which analytical and expert methods are considered. Let's consider factors in more detail.

TABLE 1. DIAGNOSTICS OF THE FACTORS, DEFINING SIZE OF TERM OF USEFUL LIFE OF ORGANIZATIONAL KNOWLEDGE

№	Name factors	Classification of factors	Way of diagnostics
1.	Character of let-out production	1. Knowledge-intensive 2. Labor-consuming 3. Material-intensive 4. Assets-intensive 5. Power-intensive	The analytical (analysis of structure of actual cost of production)
2.	Production type	1. Mass 2. Serial 3. Individual	The analytical (analysis of a variety of product range; the analysis of a variety of labor operations on workplaces in the main production)
3.	Enterprise strategy	1. The concentrated growth, including position strengthening in the market; market developments; product developments 2. The integrated growth, including return or forward going vertical integration 3. Diversified growth, including the aligned, horizontal or conglomerative diversification 4. Reductions, including elimination, cutting off superfluous, reduction and reorientation	Actual data
4.	Cognitive potential of the personnel of the enterprise	1. High – creative use of various knowledge, skills with understanding not only the purposes, but also motives, a choice of ways of achievement of the purpose 2. Average – a row advanced, but the narrow abilities necessary in different types of activity 3. Low – understanding of	The expert and analytical (the analysis of performance of functions by the specific personal, then finding of average value on all personnel)

		the purpose of action and search of ways of its performance relying on earlier acquired knowledge, abilities and skills	
5.	The share of the personnel occupied with scientific researches and development	1. High – with scientific researches and development it is occupied more than a half of employees of the organization 2. Average – in scientific researches accepts participation more than a quarter of the personnel of the organization 3. Low – in scientific researches accepts participation less than a quarter of the personnel of the organization	The analytical (the analysis of structure of all personnel of the organization which is taking part in scientific researches and development)
6.	Level of a technological innovation	1. Innovative-passive enterprises 2. Innovative-inconsistent enterprises 3. Innovative-active enterprises 4. Innovative-dynamic enterprises	The analytical (the analysis of use of technologically new products and processes, services, ways of production (transfer) of services for the last 3 years)
7.	Level of a marketing innovation	1. Innovative-passive enterprises 2. Innovative-inconsistent enterprises 3. Innovative-active enterprises 4. Innovative-dynamic enterprises	The analytical (the analysis of use new or considerably improved design and packing of production, methods of sales and presentation of products (services), their representation and advance on sales markets, formation of new valuable strategy for the last 3 years)
8.	Level of an organizational innovation	1. Innovative-passive enterprises 2. Innovative-inconsistent enterprises 3. Innovative-active enterprises 4. Innovative-dynamic enterprises	The analytical (the analysis of use of new methods of business, the organization of workplaces or external relations for the last 3 years)
9.	Degree of stability of environment	1. High 2. Average 3. Low	Expert method

**1. Character of let-out production.** It is estimated on the basis of the analysis of structure of actual cost of production. Thanks to carrying out this analysis it is possible to draw a conclusion on a prevailing element of expenses. It can be expenses: on design of products and technology of their manufacturing (the knowledge-intensive production); labor costs and others, having social character (labor-consuming production); costs of raw materials and materials (material-intensive production); costs of amortization and maintenance of the equipment (assets-intensive production), or costs of thermal and electric energy (power-intensive production) [6].

**2. Production type.** It is diagnosed on the basis of the analysis of a variety of product range, the analysis of a variety of labor operations on working places in the main production. Results of this analysis characterize width of product range and nature of specialization of workplaces, that is as a result comes to light, what type of production prevails at the studied enterprises: mass, serial or individual [6].

**3. Enterprise strategy.** It is actually accepted strategy

from among known or their combination. It is necessary for head to estimate a view and subspecies from four managements of strategy known in the theory: 1) strategy of the concentrated growth, including strategy of change of a product and (or) the market; 2) strategy of the integrated growth which is connected with firm expansion by a way of addition of new structures; 3) strategy of diversified growth which is realized if the firm can't develop in this market with this product within this branch further; 4) strategy of reduction which is realized when the firm needs a regrouping of forces after the long period of growth or due to the need of efficiency increase when recessions and cardinal changes in economy, for example, structural reorganization [6] are observed.

**4. Cognitive potential of the personnel of the enterprise.** The concept «cognitive potential» in management designates cumulative abilities of workers the enterprises connected with process of acquisition, use and transfer of knowledge, abilities and skills which are necessary to choose, carry out and coordinate the actions, strategic advantages providing to the enterprise on a commodity market, services and knowledge. Allocate the following levels of cognitive potential of workers: 1) the high – creative use of various knowledge, skills with understanding not only the purposes, but also motives, a choice of ways of achievement of the purpose; 2) average – a row advanced, but the narrow abilities necessary in different types of activity; 3) the low – understanding of the purpose of action and search of ways of its performance relying on earlier acquired knowledge, skills [6]. The cognitive potential of the person received the development in medicine where it designates electric reaction of a brain to an external irritant or to performance of an intellectual (cognitive) task. Medical way of diagnostics is fixing from a head surface by means of special technical devices, and also supervision over behavior of the patient. We offer at enterprise level establishment of the specified indicator by supervision over performance by the person of certain types of works. Then indicator averaging on collective as a whole.

**5. A share of the personnel of the organization, taken with scientific researches and development.** Set of persons, whose creative activity which is carried out on a systematic basis represents, is directed on increase in the sum of scientific knowledge and search of new scopes of this knowledge, and also the direct services occupied with rendering connected with performance of scientific researches and development [8]. With requirements of economy of knowledge we offer a share of the personnel of the organization, taken with scientific researches and development, to subdivide on high (it is occupied more than a half of employees), average (more than a quarter) and low (less than a quarter). Is defined by a way of the analysis of structure of all personnel of the organization which is taking part in scientific researches and development.

**6. Level of a technological innovation.** Technological innovations are meant as the activity of the organization connected with development and introduction of technologically new products and processes, and also considerable technological improvements in products and processes; technologically new or considerably advanced services; new or considerably advanced ways of production (transfer) of services [7]. Is defined by the relation of volume of technologically new products and processes, services, ways of production (transfer) of services to the general quantity at the enterprise. Pays off as a percentage.

**7. Level of a marketing innovation.** Marketing innovations represent realization new or considerably improved

changes of design and packing of products; use of new methods of sales and presentation of products (services), their representation and advance on a sales market, formation of new price strategy [7]. Is defined by the relation of volume new or considerably improved design and packing of production, methods of sales and presentation of products (services), their representation and advance on sales markets, formation of new valuable strategy to total available at the enterprise. Pays off as a percentage.

**8. Level of an organizational innovation.** Organizational innovations consist in realization of a new method of business, the organization of workplaces or external relations [7]. Are defined by the relation of volume of new methods of business, the organization of workplaces or external relations to available at the enterprise. Pays off as a percentage.

On level of an innovation of the enterprise are subdivided into the following categories:

1) innovative-passive – didn't carry out innovations in this year and don't plan them in the next 3 years;

2) innovative-inconsistent – carried out innovations in this year, but don't plan them in the next 3 years, or didn't carry out innovations, but plan them;

3) innovative-active – increased innovative activity in the current year in comparison with previous not less than by 10 % and in the next 3 years expect growth of innovations by the same rates;

4) innovative-dynamic – increased innovative activity in the current year in comparison with previous more than by 10 % and in the next 3 years expect growth of innovations more than 10 % rates [6].

**9. Degree of stability of environment of the organization.** It is diagnosed on a basis of expert estimates of top managers which should compare the enterprise, taking into account its branch accessory, to the enterprises of other branches having high, average and low stability of environment. We determine stability of the environment by the following types: high when environment changes a little; average, when changes of environment with average rates or low when environment changes quickly [6].

Thus, the factors considered above are key at making decision on terms of useful life of organizational knowledge. At the following stage there is a need of modeling of a situation of a choice of term of useful life for the concrete organization taking into account external and internal factors of its functioning.

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